

## Ventilation, Double Glazing and Insulation

Without well planned Ventilation, Double Glazing and Insulation may be a waste of your good money.

One million New Zealand homes, more than two out of three, were built before minimum insulation was required in 1977. In 2001, one in four (300,000) had no insulation, and about half were only partly or poorly insulated.

The World Health Organisation (WHO) recommends a minimum indoor temperature of 18°C.

Consider this: The BRANZ Household Energy End-Use Project (HEEP) from 2002 found the average house temperatures in New Zealand does not seem to have risen since the 1970s. The mean temperature in Auckland houses was 16.5°C. The un-insulated houses were on average 1.4°C colder. Neither of these temperatures are up to the standards of the WHO recommendation of 18°C.

Does this mean that insulation is not entirely doing what the authorities want? An increase of only 1.4°C once they have insulated the homes, I feel this needs to be thought through far more than just wrapping the houses up with double glazing and insulation and bad ventilation.

Before I go much further, and to save some explanation later, wherever I mention insulation I also include Double Glazing as they are both insulating the inside of your home from the outside – Double Glazing is a very effective way of separating the outside glass from the inside glass with an air tight gap. Doing this gives great insulation from heat loss (also heat gain from the Sun), along with cutting noise from outside the house, enabling a quieter home with your doors and windows closed.

### NOTE:

Double Glazing Stops the impression of condensation on the glass, but does not change the cause of condensation, which is too much moisture in your home (too high a humidity level, yes in winter too).

Yes, all homes need heating, some more than others, this is possibly because of the house orientation, the house design, how well or how badly it is insulated, how damp or humid it is and often quite surprisingly the way people live in their home. Generally the more we Double Glaze and Insulate the better, the less energy we will need to manufacture to enable us to heat our home, and we may even save on heating bills.

There is a 'but', if you do not keep your entire home ventilated with dry fresh air (free from your roof and mother nature) you will increase the moisture content of your home, and spend more on heating, as you are heating more and more water each time you turn your heaters on.

I was in a home the other day that was 23°C in the bedrooms, it felt very cold, the beds felt damp.  
The owner was shivering and this was at 2pm on a partially cloudy day.  
The lounge was also 23°C but in the sun felt much warmer.

It does not matter how you heat your home, if you want to use a wood fire, a gas heater, central heating (ducted or radiators) a heat pump or electric (oil column or fan) heaters you will get far better and more efficient heating if you have dried out your home first.

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To get the best from all the money you have spent on Double Glazing and Insulation you should keep your windows closed as this will stop excess heat loss. Oops that's right we need to open windows to keep our home fresh and to 'ventilate' our home as we have 'always' done, well think about it, this is one of the things that gives us all cold damp fresh air, then once we have closed our windows we need to spend our hard earned money to heat up that cold damp air, and we do this time and time again. We continue this cycle as we make our homes damp just by living in them, by washing, cooking, showering and breathing, then we open windows to make it fresh but cold then we heat it, and the cycle continues.

**“Now while looking at changing how you ‘Heat and Insulate’ your home, maybe a good thing would be to look at ‘how and why’ we do the things we do in our homes”**

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Installing Double Glazing and Insulation - which to be efficient we should do - does tend to reduce the air flow through your home and also keeps any moisture in your home. This moisture in a well insulated home that is heated will stay there and assist any mould growth and affect the health of the occupants, especially children and the elderly.

We go into many 'new' homes less than 5 years old that have bad condensation and mould growth, the owners want us there to get rid of the problem, as they have had enough of the wet windows, damaged sills and mould in the bedrooms. We often find a friend has one of our home ventilation systems installed which has removed all the condensation, mould and bad odours from the home and still making the home efficient and cost effective.

Here's an example of why your bed feels cold but is actually the same temperature as the room it is in:

Imagine a cardboard box slightly damp and put out in the sun, it will dry out, and the moisture evaporates into the atmosphere. Now imagine the same cardboard box, it has been dampened in the same manner but is wrapped up (Double Glazing and Insulation) to keep the heat in, this also keeps the moisture in. It is now put out in the sun, the box takes longer to warm up, once warm it also takes a lot longer to cool and the moisture cannot escape.

This enclosed box will decay as there has been no dry air passing through it to remove the offending moisture. Ultimately the box will have a far shorter life expectancy than the one that got damp but was also dried out on a regular basis.

Now for an interesting observation, place two bowls in front of you, fill one with water and allow the water to become room temperature, please use a thermometer to confirm the temperature, if you leave this to feel it will never happen. For explanation purposes I'll use 20°C as the temperature of both the room and the water.

Now place your hand in the bowl of room air, that's what 20°C feels like when there is little if any moisture in it. Now place your hand in the bowl of water (also 20°C) how does that feel? It should, feel cold as your skin temperature is around 28-32°C and the water is busy dragging the heat out of your skin making your skin cold and feel cold. Here is an example that most of us have experienced, public swimming pools, the water temperature is shown as being 22°C and we think, great it'll be warm water but when we jump in, it feels very cold this again is because our skin is much warmer than the water that cooling us down very quickly.

To be Healthy your home needs:

Firstly: To be dry, as this keeps the mould, dust mites and allergies etc at bay, and makes it easier to heat.

Secondly: Fresh filtered air flow – which is not cold, damp and full of pollen or pollution.

Thirdly: Heated to a comfortable temperature but not over heated.

Often I find that home owners heat the home first, then wrap it up and insulate it and keep all the heat in, then open the windows to bring in the 'fresh air' and then wonder why they are not healthy always got a cold or the flu, and are spending a fortune on heating for longer and longer periods each year.

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